ABSTRACT

A centrifugal spectrometer has a solid rotor (10) formed within which there are cavities or blades (12). In use, each blade is filled with a buffer solution, and a sample to be separated is placed in a sample well (32) at the end of a separation channel (24). The rotor is spun at a controlled velocity and, at the same time, a controlled potential difference is applied along the length of the blade. The blade shape causes the resultant electric field to vary as a function of radial distance. The sample separates out into bands, which move along the channel (24) under the combined influence of the centrifugal force and the varying electric field. The bands focus at differing equilibrium points according to their charge/mass ratios. The band positions are determined by a readout head (36). The dynamic range of the device may be controlled by altering the rotational velocity and the voltages that are applied.